AMENDMENT(S) TO THE SPECIFICATION

Please insert the following paragraph at page 1, line 2:

Cross Reference to Related Application

The present application is a 35 U.S.C. §§ 371 national phase conversion of PCT/DE2003/003829 filed 19 November 2003, which claims priority of German Application No. 102 54 814.5 filed 23 November 2002. The PCT International Application was published in the German language.

Please replace the paragraph beginning at page 1, line 3, with the following rewritten paragraph:

~~Field~~ Background of the Invention

The invention relates to a rolling bearing comprising arranged sensors by means of which the present loading on the rolling bearing can be determined.

U.S. Patent No. ~~US~~ 5,952,578 describes such force-sensing bearings. Figure 10b of this document illustrates how, in the case of a tapered roller bearing, the force (material elongation) measured by the sensors is divided into radial forces and axial forces. The problem of this solution is that the raceway angle has to be constant in order to decompose the forces into radial and axial forces. For rolling bearings comprising curved raceways, such as e.g. deep-groove ball bearings, the method described cannot be employed to determine the axial or radial forces acting on the rolling bearing with sensors arranged opposite the raceways.

Please replace the paragraph beginning at page 1, line 20, with the following rewritten paragraph:

Therefore, the object is to ~~demonstrate~~ provide a sensor arrangement for rolling bearings comprising curved raceways ~~in the case of~~ with which the measured forces can be unambiguously decomposed into axial and radial forces.

Please replace the paragraph beginning at page 2, line 1, with the following rewritten paragraph:

~~Description~~ Summary of the Invention

The object is achieved according to the invention ~~by means of the features of claim 1~~.

Please replace the paragraph beginning at page 3, line 13, with the following rewritten paragraph:

~~The advantage of claim 3 consists in the fact that commercially~~ Commercially available rectangular strain gauge sensors can be used in the case of this arrangement.

Please replace the paragraph beginning at page 3, line 17, with the following rewritten paragraph:

Brief Description of the ~~Figures~~ Drawings

Figure 1 is an axial, partial cross-section of a rolling bearing with curved raceways;

Figures 2-6 show various sensor arrangements and

Figures2a and b and 3a show the sensed signal with the respective sensors.

Please replace the paragraph beginning at page 3, line 20, with the following rewritten paragraph:

Description of Preferred Embodiments

Figure 1 illustrates a rolling bearing comprising curved raceways (here a deep-groove ball bearing). The rolling body 1 is arranged between the two races 2 and 3. In this illustration, the rolling body is situated precisely in the central position of the rolling bearing. In the event of loading[[,]] in an axial direction the ~~said~~ rolling body migrates in the axial direction toward the other side area 2a or 2b of the rolling bearing, ~~this~~ depending on the force direction of the axial forces. In this

example, ~~the~~ sensors 4 are arranged in a groove 5 on the outer ring 2. The analogous arrangement of the sensors 4 in a groove on the inner ring 3 is not illustrated.

Please replace the paragraph beginning at page 4, line 6, with the following rewritten paragraph:

Figures 2 to ~~figure~~ Figure 5 show special sensor arrangements arranged in the groove 4 on the outer ring 2 and/or on the inner ring 3. In order to better discern the arrangement of the sensors, the rolling bearing races are shown unwound in the illustration. The sensors 4 are illustrated in trapezoidal arrangement here in the preferred embodiment of a strain gauge. The conductor track sections of the strain gauge sensor 4a and 4b, respectively, are embodied with different lengths in the axial direction 6. ~~It immediately becomes clear from this~~ This illustration shows that a rolling body which moves out of the raceway base in the axial direction 6 loads the sensors 4 for different lengths (of time). The length of the time signal of a sensor is thus proportional to the angular position of the rolling body 1 in the rolling bearing races 2 or 3. Since the sensors 4 are normally connected up to form Wheatstone bridges, the duration of the output signal of the Wheatstone bridge is thus proportional to the contact angle of the rolling body 1 in the raceway of the rolling bearing races 2 or 3. A preferred embodiment in this case is the arrangement of the strain gauge sensors at a distance in the rolling bearing race that corresponds to half the distance between two adjacent rolling bodies.

Please replace the paragraph beginning at page 5, line 19, with the following rewritten paragraph:

In the ~~case of the~~ sensor arrangement in ~~fig.~~ Figure 3, the angular position of the rolling bodies in the raceway is determined by averaging the long and short period durations in the output signal of the Wheatstone bridge. Fig. 3a illustrates the output signal of the Wheatstone bridge. The alternate period duration 8c is identified.

Please replace the paragraph beginning at page 5, line 25, with the following rewritten paragraph:

~~In the case of~~ With the sensor arrangements in ~~fig.~~ Fig. 4 and in 5, the time interval between two adjacent sensors 4c, 4d becoming loaded is proportional to the angular position of the rolling body 1 in the raceways 2c, 3c of the rolling bearing races 2 or 3. Figures 4 and 5 differ by ~~virtue of~~ their differently oriented conductor track sections in the sensors (strain gauge sensors) 4c and 4d. The comparable case with the use of commercially available strain gauge sensors with a right-angled base area is not illustrated.

Please delete page 7 in its entirety.